

REMARKS

The Office Action dated March 12, 2003, has been carefully considered. In response to the Office Action, the Applicant has amended the application. Applicant requests that the Examiner consider the following remarks, and then pass the application to allowance.

Pending Claims

Claims 1-9 are now pending.

Art Rejection Under 35 U.S.C. § 102(b)

Claims 1-5 were rejected under 35 U.S.C. § 102(b) as anticipated by Morrison (U.S. Pat. No. 4,619,274). Claim 1 has been amended to correct a typographical error.

It is important to note that Claim 1 is a method claim, and as such, recites at least two steps: 1) providing a wire of a diameter greater than the maximal diameter; and 2) reducing the diameter of the wire to less than the maximal diameter such that a mandrel is obtained whose diameter is less than the maximal diameter over substantially the entire length of the mandrel. These steps are neither disclosed nor suggested by Morrison.

Specifically, Morrison simply does not *start* with a wire *having a diameter greater than the maximal diameter* (step 1), and then proceed to *reduce* its diameter *to less than the maximal diameter*, such that a mandrel is obtained *whose diameter is less than the maximal diameter over substantially the entire length of the mandrel* (step 2). Rather, Morrison, in the discussion in the first half of column 1, merely states that "The core element 12 is centerless ground to provide a core wire which has a decreasing cross sectional area in a direction towards the distal end." (Col. 2, ll. 6-9). This does not mean that it is ground to have a diameter smaller than a maximal diameter for *substantially its entire length*, as required by Claim 1: it merely means that the wire undergoes some grinding, which, as Morrison subsequently elaborates, is different in extent than that of Claim 1.

In particular, Morrison goes on to explain that of the four constant-diameter segments of wire 12, only three of those are ground: 12c is ground to 0.015 inches; 12e is ground to 0.01 inches; and 12g is ground to 0.002-0.0025 inches. The remaining, proximalmost segment 12a is not discussed as having been ground at all, and there is simply no reason to believe that such grinding of this segment takes place or is even suggested. Further, Morrison states that the unground segment 12a forms the *major* portion of the core element (see col. 2, ll. 9-11), in direct contradiction of the requirement of Claim 1 that diameter reduction to below the maximal diameter take place "over substantially the entire length of the mandrel."¹ The teachings of Morrison are thus irreconcilable with the language Claim 1, and a rejection under 35 U.S.C. § 102(b) based on Morrison is improper and should be withdrawn.

Art Rejection Under 35 U.S.C. § 103(a)

Claims 6 and 7 were rejected under 35 U.S.C. § 103(a) as unpatentable over Morrison in view of Applicant's Admitted Prior Art.

As discussed previously, Morrison does not teach or suggest the presently claimed invention. Specifically, "reducing the diameter of the wire to less than the maximal diameter such that a mandrel is obtained whose diameter is less than the maximal diameter over substantially the entire length of the mandrel" would not have been obvious to one of ordinary skill in the art because the more expedient course of action would have been to

¹The length (L) of unground segment 12a can be empirically deduced to be the major portion of core element 12, based on the disclosure. Simply adding the disclosed lengths of the other portions, and subtracting the sum from the total core length of 84 inches (7 feet) yields the following:

$$L = 84 \text{ ins} - (2 \frac{1}{2} \text{ cm (12b)} + 35 \text{ cm (12c)} + 2.5 \text{ cm (12d)} + 10 \text{ cm (12e)} + 3 \text{ cm (12f)} + 2 \text{ cm (12g)}) = 62.3 \text{ ins}$$

It will thus be appreciated that unground segment 12a, which is 62.3 inches, does in fact form a major portion of the 84-inch length of the core.

reduce the amount of grinding required, and this would more naturally be achieved by selecting a starting wire whose diameter matches the maximal diameter, as Morrison does, in order to not have to grind the wire down for at least a portion of the wire. Applicant has discovered, however, that certain desired characteristics attend the grinding of the wire. Among these are the reduction of whipping problems, overcoming coating limitations, and more faithful transmission of torque forces. Another advantage is achievement of a roughened surface, which, if left uncoated as is set out in newly-added Claim 9, provides a high friction surface facilitating good contact with the operator's hand, thereby improving the manipulability of the device. These advantages are not recognized by the applied prior art, and one of ordinary skill in the art would therefore not be motivated to modify the prior art in the manner of the presently claimed invention. Thus the feature of "reducing the diameter of the wire to less than the maximal diameter such that a mandrel is obtained whose diameter is less than the maximal diameter over substantially the entire length of the mandrel" would not have been obvious to one of ordinary skill in the art, and withdrawal of the obviousness rejection is respectfully requested.

Newly Added Claims

Claims 8 and 9 have been added, and are directed to the addition of a lubricious coating. According to Claim 9, the lubricious coating is applied "to all but a proximal portion of the mandrel." In this manner, the proximal portion of the mandrel retains its grip-ability, facilitating handling and manipulation by the surgeon during operation.

Conclusion


In view of the preceding discussion, Applicant respectfully urges that the claims of the present application define patentable subject matter and should be passed to allowance. Such allowance is respectfully solicited.

Application Serial No. 09/806,946
Attorney's Docket No. 018413-331

If the Examiner believes that a telephone call would help advance prosecution of the present invention, the Examiner is kindly invited to call the undersigned attorney.

Respectfully submitted,

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Marked-Up Copy of Changes

1. (Amended) A method for manufacturing a guidewire having a substantially cylindrical mandrel, said mandrel having one or more segments each having a diameter not exceeding a maximal diameter, the method comprising:

providing a wire of a diameter greater than the maximal diameter; and

reducing the diameter of the wire to less [that] than the maximal diameter such that a mandrel is obtained whose diameter is less than the maximal diameter over substantially the entire length of the mandrel.